DEC 19 1980

MEMORANDUM FOR: Richard A. Hartfield, Chief
Licensee Operations Evaluation Branch
Office of Management and Program Analys

FROM: C. J. Heltemes, Jr., Deputy Director
Office for Analysis and Evaluation of
Operational Data

SUBJECT: DRAFT POWER REACTOR EVENTS VOLUME 2, NO. 6

In response to your December 5, 1980 request, enclosed are AEOD's comments on the subject draft.

Original signed by:
C. J. Heltemes, Jr.

C. J. Heltemes, Jr., Deputy Director
Office for Analysis and Evaluation of
Operational Data

Enclosures:
1. AEOD Major Comments
2. Editorial Comments on
Personnel Overexposures

cc w/enclosures:
P. Bobe, MPA; J. Crooks, MPA

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SURNAME	HLOrnstein:gt	CJHeltemes	CMichelson				
DATE	12/19/80	12/19/80	12/19/80				

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AEOD Comments on Draft Power Reactor Events

CONCERN OVER LICENSED OPERATOR PERFORMANCE

Page 2 - There are several statements in the writeup which, if correct, are of great importance; nowever, their origin is not provided in the referenced document (10/20/80 letter, Stello to Commonwealth Edison) or in other documents related to the event (the 10/24/80 IE inspection report, or the 9/17/80 OIA investigation report).

We suggest that you either reference the source of the following statements or delete them:

1 - "The two operators were issued letters of reprimand by the NRC...."

2 - "...an inspector's findings are sufficient to show noncompliance even in the face of licensee denial."

SMALL FIRES AND OVERHEATED COMPONENTS

Page 4 - Last paragraph, 2nd and 3rd lines - the part is a compression disc, not a compressor disc.

Page 5 - Line 1 - same comment.

Page 4 - Last sentence - change the word "valve" to "motor" or "valve motor" since the "valve" itself was not energized.

PERSONNEL OVEREXPOSURES DURING STEAM GENERATOR REPAIR

Page 6 - We suggest that several editorial changes be made - they appear in the enclosure.

TWO SAFETY INJECTIONS CAUSED BY INSTRUMENT SPIKES

Page 9 - We suggest the title be changed to "Two Safety Injections Caused by Pressure Spikes."

POTENTIAL DESIGN PROBLEM WITH SAFETY INJECTION LOAD SEQUENCES

Page 14 - Our review revealed the need for a major rewrite. This has been discussed between AEOD (Ornstein) and MPA (Hartfield/Crooks). It is our understanding tnat, due to the extensive rewrite necessary, this item will not be included in the present issue of Power Reactor Events, but it will be reported in a subsequent issue.

The timing adjustments for the MSIVs were later successfully completed and the licensee commenced startup operations. The licensee and the valve manufacturer are pursuing the feasibility of using an alternate oil.[4]

PERSONNEL OVEREXPOSURE DURING STEAM GENERATOR REPAIR

During a shutdown for refueling and steam generator repair at San Onofre Nuclear Generating Station, Unit No. 1,* an examination of the steam generators revealed that extensive repairs would be required. Such repairs normally require many personnel entries into the steam generator channel head area where high radiation levels exist such that personnel may receive exposures approaching or exceeding NRC limits in a few minutes. Thus, careful radiation surveys are required before workers are permitted to enter the channel heads. During the initial periods of work in the San Onofre Unit 1 steam generators, the licensee failed to make adequate surveys. Consequently, eleven individuals received radiation exposures in excess of NRC's 3 rem quarterly limit in the second calendar quarter, and four in the third quarter, of 1980.[5]

On September 3, 1980, the licensee reported to NRC that as many as 73 persons may have been exposed above the NRC quarterly limits during the third quarter of 1980. That report resulted from a preliminary evaluation of radiation to the head area versus chest exposures. Following what

*A 436 MWe PWR located 5 miles south of San Clemente, California; operated by Southern California Edison Company.

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the licensee assumed to be standard industry practice, personnel film badges were worn only on the chest during the repair work. More detailed radiation surveys indicated, however, that exposures to the head would have been from 1.2 to 2.8 times the chest exposure with an average factor of 1.62. NRC requirements and good health physics practice dictate that personnel dosimeters should be worn at or near the organ expected to receive the highest exposure. Subsequent surveys and calculations determined that, in fact, only the aforementioned 15 persons had been overexposed and that the highest individual exposure was 4.08 rems compared with the NRC limit of 3 rems per calendar quarter.

The licensee has taken immediate corrective action to provide appropriate personnel monitoring for all future steam generator entries. Film badges will be worn both on the chest and on the head with the higher of the two readings being assigned as the person's radiation exposure. All the individuals exposed above the NRC limits were removed from radiation work until the fourth quarter of 1980.

Completion of the decontamination and repair work on the steam generators will require the use of transient workers. On September 13 and 14, 1980, Southern California Edison placed an advertisement in the San Diego Union newspaper, offering $100.00 a day for three days training and two days work involving exposure to radiation within federally permitted levels. This matter has attracted considerable media attention on the West Coast. The Governor of California has expressed considerable interest, and some objection to the licensee's plans for transient

worker exposure. The Governor has contacted the Region V NRC office for additional information, and has instructed his staff to develop ~~for him~~ an evaluation of the risks of the radiation exposures. State of California personnel also plan to audit the training being given the transient workers by the licensee, with expressed interest in training related to the risks to the worker from radiation exposure.

FAILURE OF HPCI TO INJECT

This event occurred at E. I. Hatch Unit 1* on June 26, 1980, and involved failure of the high pressure coolant injection (HPCI) to inject. Following a turbine trip, the reactor scrammed from a main turbine stop valve fast closure. The HPCI system received an automatic initiation signal on low reactor water level, but failed to inject into the reactor pressure vessel (RPV) because of steam line isolation from a high differential pressure signal. This represented failure of a system to complete its required protection function, as required by the technical specifications.[6]

The isolation was reset, but when the inboard isolation valve was opened, the outboard isolation valve received another steam line high differential pressure isolation signal. The isolation mode was again reset, and the isolation valves opened. The HPCI then automatically started and injected to the RPV, and was used to control water level. The automatic depressurization system, core spray, and low pressure coolant injection systems were operable. The reactor core isolation cooling system (RCIC), however, was inoperable.

*A 777 MWe BWR located 11 miles north of Baxley, Georgia; operated by Georgia Power Company.